REMARKS

Applicants have now had an opportunity to carefully consider the Examiner's comments set forth in the Office Action of May 6, 2004.

Reconsideration of the Application is requested.

The Office Action

Drawings are objected to under 37 CFR §1.83(a) stating that the drawings must show every feature of the invention specified in the claims.

Claims 1 - 37 remain in this application.

Claims 3, 20 – 23, 27 and 34 – 37 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to point out and distinctly claim the subject matter which applicants regard as the invention.

Claims 1 – 19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over H.A.M. Van Oijen (U.S. Patent No. 5,918,988).

Claims 20 – 27 and 28 – 33 stand rejected under 35 U.S.C. §103(a) as being unpatentable over H.A.M. Van Oijen in view of Harrington III et al. (U.S. Patent No. 6,166,822).

Claim 34 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Joslin et al. (U.S. Patent No. 6,272,483 B1).

Claims 35 – 37 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Joslin in view of Gregory (Newsgroups: news.answers, sci.answers, sci.op-research).

Summary of Telephonic Interview

The Applicants acknowledge and appreciate the time and courtesy Examiner Kenneth Tang extended in participating in a telephone interview held August 5, 2004. The interview is summarized herein.

Three main points of distinction were discussed in the interview. The first point regards the difference between the concepts of a "cell" in the present application with that of a "cell" in the cited reference. The "cell" of the present application is a logical grouping of resources sufficient to complete at least one type of document processing job whereas the "cell" of the cited reference is a location in a matrix such as a cell of an Excel spreadsheet where the cell is the intersection of horizontal and vertical axes. In the cited reference the vertical

axis may contain a list of images or files which comprise the print job and the horizontal axis may contain a list of sets corresponding to single run or job. The cell then contains the number of prints of the image or file that are to form the specific set.

The second distinction discussed in the interview concerned the process by which a cell submits a bid for a document processing job. After a document processing job is received in the printshop the printing workflow system sends information concerning the job to the autonomous cells. The cells then form a cost function which acts as a bid and the bid is sent back to the printing workflow system. The printing workflow system then chooses a cell to process the document processing job based on the lowest of these bids.

The third distinction discussed in the interview regarded the splitting of a document processing job into sub-jobs if the job was to large to be completely processed in a single cell. The large document processing job is split into smaller sub-jobs which are capable of being completely processed in a single autonomous cell and then the sub-jobs are treated as individual document processing jobs.

COMMENTS/ARGUMENTS
The Non-Art Rejections

The rejections under 35 U.S.C. 112, second paragraph are hereby respectfully traversed. Claims 3, 21, 27, 34, 36 and 37 have been amended to further point out and distinctly claim the subject matter which the applicants regard as the invention. Furthermore, claims 1, 2, 4 – 19, 25, 28, 29, 31 and 32 have been amended to correct other informalities and to more consistently reflect the language of the amended claims.

As to the Examiner's comment regarding the term "prepended" not clearly showing what the term is referring to, the applicants refer to page 9, lines 17 – 19 of the present application. The disclosure states "If the printing workflow system gets augmented with newer operations, then the new operations are prepended to the matrix, i.e. they are added to the beginning of the vector." Accordingly, the term "prepended" refers to adding any new operations to the beginning of the vector or matrix. In view of the preceding, the Applicants respectfully submit that all claims are now in proper form and have sufficient antecedent basis for

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allowance.

The Art Rejections

Claims 1 – 19 stand rejected under 35 U.S.C. 103(a) as being unpatentable over H.A.M. Van Oijen (U.S. Patent No. 5,918,988). This position is hereby respectfully traversed. The cited reference does not teach or fairly suggest the claim limitations set forth in these claims of the present application. The Office Action asserts that H.A.M. Van Oijen teaches coordinating production of a document processing job among a plurality of cells, wherein each cell submits a bid to process the document processing job received by the printing workflow system. The Applicants respectfully disagree with the Office Action's assertion. The present application discloses and claims distributing one or more document processing jobs between multiple autonomous cells capable of completing at least the document processing job that is received at the cell. H.A.M. Van Oijen neither teaches nor fairly suggests this concept; rather H.A.M. Van Oijen discloses a system and method for selecting a single print job from a plurality of print jobs stored in memory. Also, the Applicants respectfully state the concept of a "cell" as claimed in the present application versus the concept of "cell" as described in the cited reference are distinct. A "cell" as disclosed and claimed in the present application refers to a grouping of resources sufficient to complete at least one type of document processing job autonomously, i.e. complete the document processing job entirely within the cell. Conversely, the "cell" of H.A.M. Van Oijen refers to "a cell of the matrix" of a matrix-sorting process. It is a cell of a matrix having a vertical and horizontal axis which correspond to "original images or files" of the print job and "sets" of the print job respectively. A cell, as disclosed in H.A.M. Van Oijen, contains a number indicating how many prints of an original image or file are to be printed for each specific set of the print job wherein a set corresponds to a single run or a job therein.

The Office Action further asserts that H.A.M. Van Oijen teaches each cell submitting a bid to process the document processing job received by the printing workflow system. It is submitted that H.A.M. Van Oijen neither teaches nor fairly suggests that cells submit bids to process the document processing job; rather H.A.M. Van Oijen teaches selecting a print job on the basis of print criteria which is set by a user. A print job is selected automatically from a plurality of print jobs

stored in memory based on print criteria which has been set by a user. The print job may be selected based on the number of copies to be printed of a print job or based on the type of stock, e.g. letter-size or A4, required for a print job; however, nowhere in H.A.M. Van Oijen is it disclosed that a bid is submitted by a cell to process the document processing job.

For at least the reasons stated above, the Applicants respectfully submit that independent claims 2, 6, 12 and 16 distinguish over the cited art and are in condition for allowance, furthermore, claims 1 – 5, 7 – 11, 13 – 15 and 17 – 19 which depend respectively therefrom, are also in condition for allowance.

Concerning claims 20 – 27 and 28 – 33, the rejections under 35 U.S.C. 103(a) as being unpatentable over H.A.M. Van Oijen in view of Harrington, III et al. (U.S. Patent No. 6,166,822) are hereby traversed. As to independent claims 20 and 24, the references cited in the Office Action neither alone nor in combination teach nor fairly suggest all the limitations of the claims. H.A.M. Van Oijen alone or in combination with Harrington fails to teach or fairly suggest a descriptor module for creating a new (vector) matrix by assigning a value in the (vector) matrix for each operation required to be performed to complete the document processing job. The Office Action cites col. 8, lines 3 – 33 of H.A.M. Van Oijen, wherein a printing system that uses matrix-sorting to select the number of images or files that are to be printed for each copy set of the print job. The Office Action further asserts that the converter module for converting the new (vector) matrix into a numerical format that represent the unique ID of claim 20 is taught by Harrington. The applicants respectfully disagree with this assertion. Notably, both references, either alone or in combination, fail to teach or fairly suggest converting a (vector) matrix which denotes operations to be performed on a document processing job into a numerical format that represents a unique ID. Rather, Harrington teaches converting an image matrix, wherein the cells of the matrix represent a block or at least one dot or pixel location on a print medium, into a rudimentary character to be printed on the medium.

The Applicants respectfully submit that independent claims 20 and 24 along with claims 21 – 23 and 25 - 27 which depend therefrom distinguish over the cited references and are in condition for allowance for at least the reasons stated above.

Regarding independent claims 28 and 31, the Office Action seems to be

citing a number of separate sections from the cited references and using them as examples of teachings of the present claims. However, H.A.M. Van Oijen as stated earlier discloses a system and method of selecting a print job from a plurality of print jobs stored in memory using print criteria set by a user. Furthermore, Harrington teaches a method for a host based printer to print diagnostics and internal test results on a print medium in a rudimentary fashion independent of the host. Neither reference, alone or in combination, teaches nor fairly suggests a device or a method for assigning a descriptive ID to a document processing job by appending the due date, due time, number of duplicates and/or units associated with each operation in the document processing job to an unique ID.

For at least the reasons discussed above, independent claims 28 and 31, and claims 29 – 30 and 32 – 33 depending therefrom are distinguished and in condition for allowance.

As to independent claim 34, the Office Action cites Joslin et al. (U.S. Patent No. 6,272,483 B1) as teaching the claimed subject matter. The applicants respectfully contend that Joslin fails to teach or fairly suggest the subject matter of the claim in its entirety, i.e. as a whole. Specifically, Joslin fails to disclose a scheduling device that first, determines optimization constraints, second, determines if the cost function is linear and third, optimizes the cost function subject to the constraints. Contrarily, Joslin teaches a system that includes a local optimization engine and a global optimization engine. The local optimization engine operates according to a "squeaky wheel optimization" wherein "the engine iteratively generates and modifies assignments based on trouble spots identified in each constructed assignment." Next, the system uses linear programming techniques to combine the individual assignments generated by the local optimization engine into an optimally feasible solution.

For at least the reasons stated above, independent claim 34 and claims 35 – 37 which depend therefrom are distinguished and in condition for allowance.

New claims 38 and 39 further define and detail a printing workflow system that divides a document processing job into smaller sub-jobs if the document processing job is too large to be completed entirely within a single cell. The disclosed subject matter is not found in any of the cited references either alone or in any combination. Therefore, the claims 38 and 39 are distinguished and in condition for allowance.

CONCLUSION

For the reasons detailed above, it is submitted all claims remaining in the application (Claims 1 - 39) are now in condition for allowance. The foregoing comments do not require unnecessary additional search or examination.
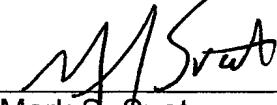
In the event the Examiner considers personal contact advantageous to the disposition of this case, he/she is hereby authorized to call Mark S. Svat, at Telephone Number (216) 861-5582.

Respectfully submitted,

FAY, SHARPE, FAGAN,
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Date

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Attachment: Replacement Sheet (Figure 11)

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